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DEMOGRAPHIC ANALYSES AND FORECASTS
FOR
CHARLESTOWN

BOSTON REDEVELOPMENT AUTHORITY

February 16, 1962

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INTRODUCTION

This statement delineates the demographic, rather than the technical, findings of phase one of a population study for the City of Boston in which Charlestown was one of two high priority renewal areas that were selected for treatment during this phase. The findings presented here are for Charlestown only. Other reports delineate in detail the methods employed and the demographic findings for other areas. It is proposed that subsequent phases of the population study will be concerned with other parts of the city and will deal in addition with socio-economic characteristics.

The material presented in this report is organized in four sections. Section A deals with historical demographic change. A description of the migration pattern into, within, and out of Charlestown during the 1950's is contained in Section B. Section C presents and describes the alternative forecasts prepared with a commentary on the technical aspects of forecasting appearing in Section D.

Section A

HISTORICAL CHANGE

During the 1950's Charlestown's population declined by 6,174 persons to a 1960 level of 20,147. This is a decline of about twenty three and one half percent. Compared to the two previous decades, the experience during 1950's was the sharpest percentage decline though the absolute decline during the 1930's was about the same as during the 1950's.

Adult population age twenty through fifty declined sharply along with the population age 15 and younger. The most stable sector of the population as far as constancy of numbers is concerned was among the older population age 50 and over. The change in population during the 1950's by age group and sex is shown in the Population pyramid in Figure I.

Figure II shows the gross rates of net change for the total Charlestown population evaluated on the basis of changes in cohorts rather than in age group population. It can be seen quite clearly that a negative change in all age cohorts has occurred. During the first half of the 1950's as compared to the second half relatively high rates of decline prevailed for the very young and the very old with relatively low rates of decline characterizing change among the age cohorts in between. The

1200

800

400

70 +

400

800

1200

65-69

60-64

55-59

50-54

45-49

40-44

35-39

30-34

25-29

20-24

15-19

10-14

5-9

0-4

Male

Female

1960
1955

1950

1950

1955

1960

Figure I

DISTRIBUTION OF CHARLESTOWN POPULATION BY AGE AND SEX
FOR 1950, 1955 AND 1960

Table I

CHARLESTOWN POPULATION BY AGE AND SEX
FOR 1950, 1955 AND 1960

Age Group	1950			1955			1960			Age Group
	Male	Fem.	Tot.	Male	Fem.	Tot.	Male	Fem.	Tot.	
0-4	1518	1481	2999	1210	1121	2331	1158	1102	2260	0-4
5-9	1328	1196	2524	1163	1063	2226	1023	949	1972	5-9
10-14	1183	1155	2338	1064	955	2019	931	914	1845	10-14
15-19	985	1060	2045	966	914	1880	934	844	1778	15-19
20-24	1053	1064	2117	1003	863	1866	766	695	1461	20-24
25-29	1071	1092	2163	892	763	1655	651	577	1228	25-29
30-34	978	998	1976	849	746	1595	597	586	1183	30-34
35-39	857	923	1780	769	813	1582	539	580	1119	35-39
40-44	816	833	1649	751	790	1541	551	632	1183	40-44
45-49	704	680	1384	707	693	1400	549	608	1157	45-49
50-54	594	615	1209	631	618	1249	529	604	1133	50-54
55-59	527	574	1101	555	566	1121	453	507	960	55-59
60-64	431	506	937	402	452	854	397	469	866	60-64
65-69	378	484	862	334	443	777	327	430	757	65-69
70-	502	636	1237	580	630	1210	477	768	1245	70-
Total			26321			23306			20147	Total
5-19	3496	3911	6907	3193	2932	6125	2888	2707	5595	5-19
20-64	7031	7285	14316	6559	6304	12863	5032	5258	10290	20-64
65-	880	1219	2099	914	1073	1987	804	1198	2002	65-

Table II

GROSS RATES OF NEW CHANGE BY SEX AND AGE COHORTS
DURING 1950-54 AND 1955-59 (Ten thousandths)

Age Group	1950-54			1955-59			Age Group
	Male	Fem.	Tot.	Male	Fem.	Tot.	
0-1	8711	8630	8672	8853	9018	8933	0-1
1-4	7661	7178	7422	8455	8466	8460	1-4
5-9	8012	7985	7999	8005	8598	8288	5-9
10-14	8166	8142	8041	8778	8838	8806	10-14
15-19	1.0183	7171	9125	7930	7604	7771	15-19
20-24	8471	6832	7818	6491	6686	6581	20-24
25-29	7927	8146	7374	6693	7680	7148	25-29
30-34	7863	8559	8006	6349	7775	7016	30-34
35-39	8763	8319	8657	7165	7774	7478	35-39
40-44	8664	9088	8490	7310	7696	7508	40-44
45-49	8963	9203	9025	7482	8716	8043	45-49
50-54	9343	7875	9272	7179	8204	7686	50-54
55-59	7628	8755	7757	7153	8286	7725	55-59
60-64	7749		8292	8134	9513	8864	60-64
65-69	6591	5168	5765	7036	7878	7516	65-69
70-	6591			4172	6651	5463	70-
65-							65-

same general pattern appears when age cohort rates of change are plotted for males and females separately. This is shown in Figures III and IV. Quite probably the slight increase computed for males 15-19 becoming 20-24 is a result of inaccuracies in deducting military population from the 1950 census data.

Tables I and II list the numerical values which are graphed in Figures I through IV.

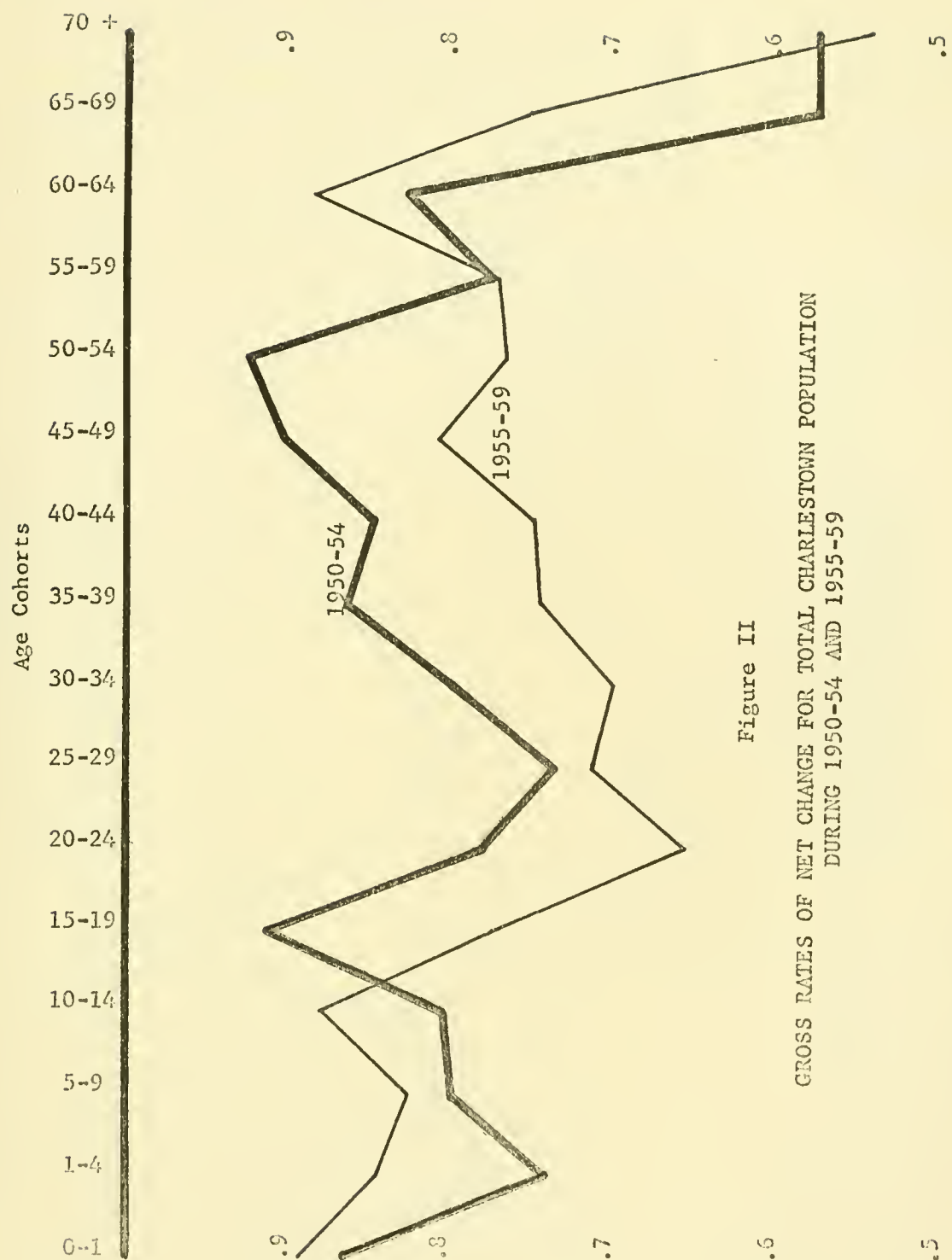


Figure II
GROSS RATES OF NET CHANGE FOR TOTAL CHARLESTOWN POPULATION
DURING 1950-54 AND 1955-59



Figure III
GROSS RATES OF NET CHANGE FOR MALE CHARLESTOWN POPULATION
DURING 1950-54 AND 1955-59

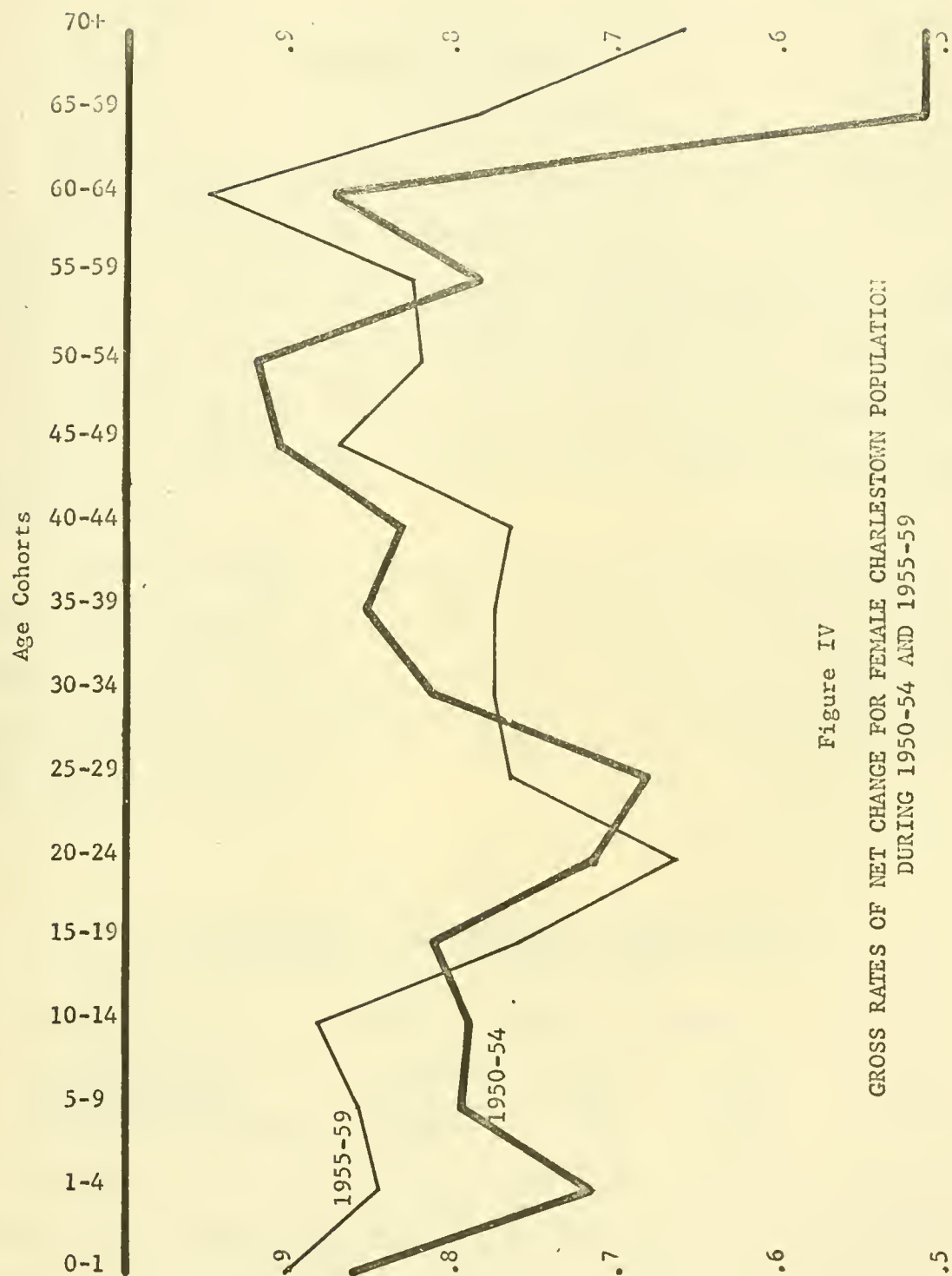


Figure IV
GROSS RATES OF NET CHANGE FOR FEMALE CHARLESTOWN POPULATION
DURING 1950-54 AND 1955-59

MIGRATION PATTERNS

The variable contributing most to the change of socio-economic characteristics of the Charlestown population is migration. A survey of the Boston List of Residents was undertaken to develop information which would describe in more detail for the population 20 years and over the migration patterns during the 1950's in Charlestown. Table IV and V delineates the summary of this survey.

During the 1950's a minimum of 30,316 persons over 19 years of age changed their place of residence by moving into, within, or out of Charlestown with the distribution approximately equal among males and females. Table III is a summary of the gross flows of persons.

Table III

SUMMARY OF POPULATION MOVEMENTS IN CHARLESTOWN FOR PEOPLE OVER 19 YEARS OLD

<u>Movement</u>	<u>1950-59</u>	<u>1950-54</u>	<u>1955-59</u>
Inmigration	7,778	4,176	3,602
Outmigration	12,034	6,107	5,927
Internal Movement	10,504	5,122	5,382
Total	30,316	15,405	14,911

Figure V is a graphic representation of the age and sex distribution of persons moving into and within Charlestown as compiled from the Boston List of Residents. Figure VI charts

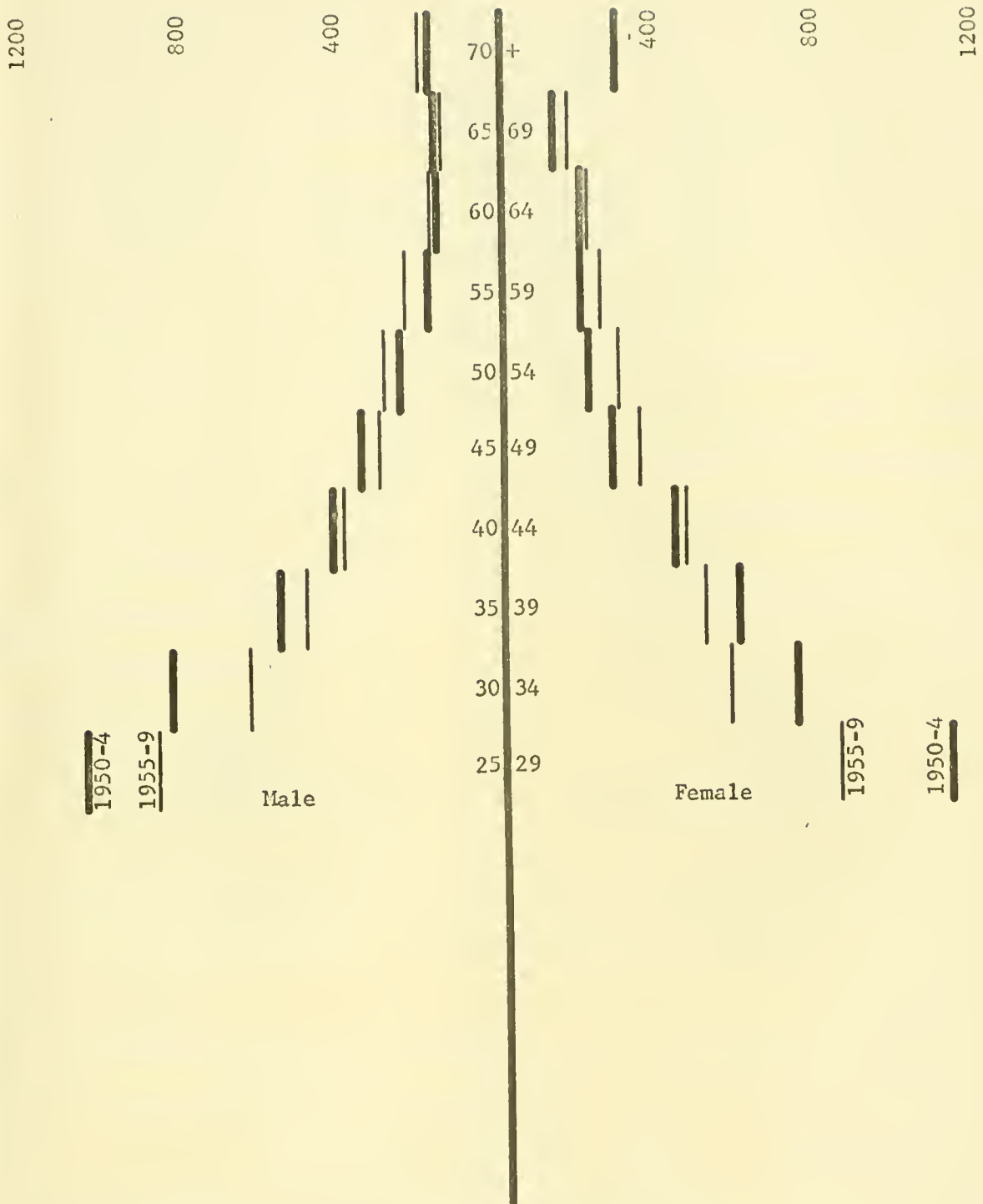


Figure V

DISTRIBUTION BY SEX AND AGE COHORT OF
PERSONS MOVING INTO AND WITHIN CHARLESTOWN
during 1950-54 and 1955-59

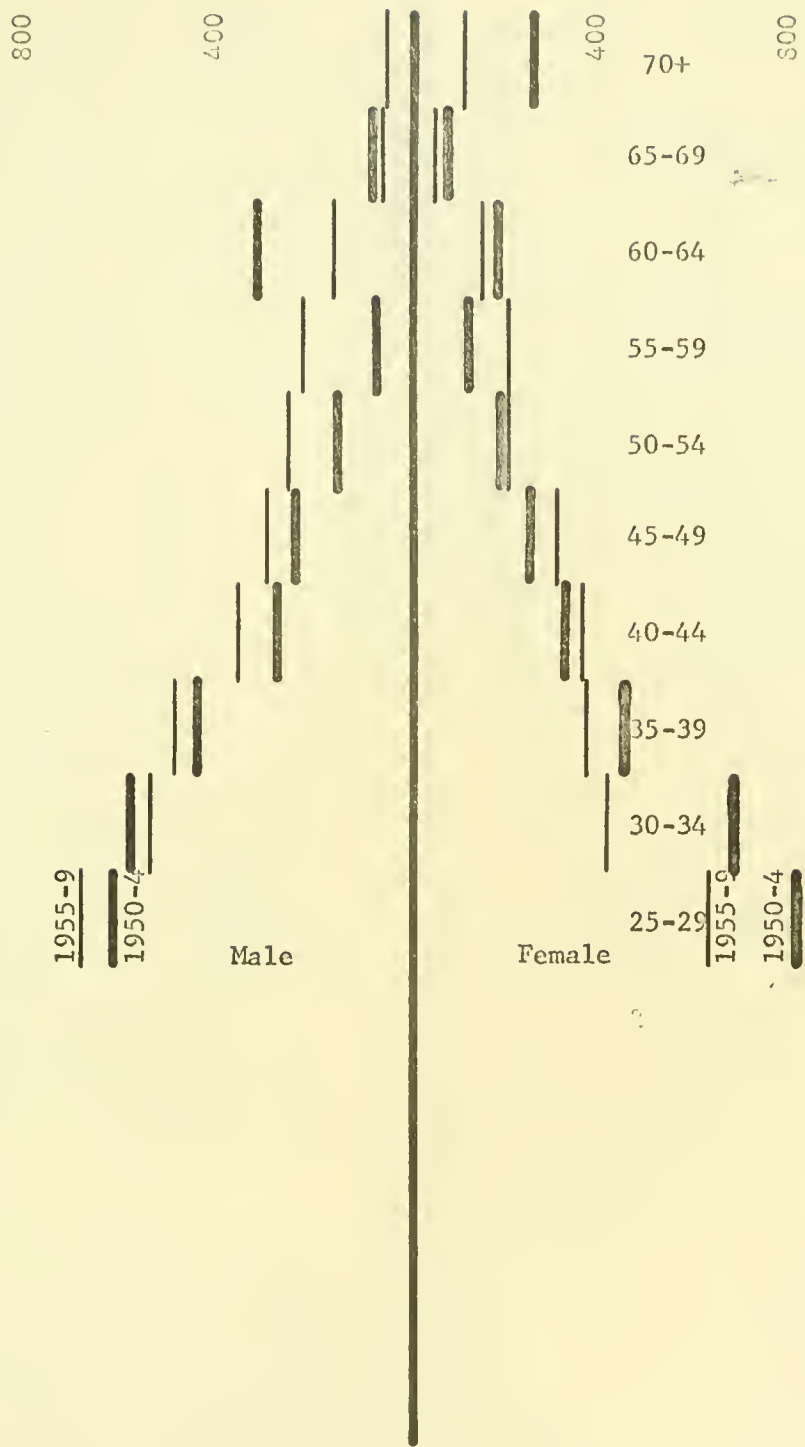


Figure VI

AGE COHORT AND SEX DISTRIBUTION OF OUTMIGRANTS FROM CHARLESTOWN
DURING 1950-54 AND 1955-59



Figure VII

AGE COHORT AND SEX DISTRIBUTION OF IMMIGRANTS TO CHARLESTOWN
DURING 1950-54 AND 1955-59

Table IV

CHARACTERISTICS OF MIGRANTS MOVING WITHIN OR TO CHARLESTOWN

Demographic Characteristics				Economic Characteristics				Migrations Within						
1950-54		Age*	1955-59		1950-54 Occupations		1955-59	Cumulative Percent		1955-9				
Male	Fem.	Tot.	Male	Fem.	Tot.	Nos.	%	Nos.	%	1950-4	Area			
381	463	844	20-24#	560	615	1175	735	8.5	Armed Forces	443	5.0	20.4	Same Tract	22.1
1064	1125	2189	25-29	878	846	1724	706	7.7	Clerical	720	8.1	55.1	Charlestown	59.8
842	737	1579	30-34	645	574	1219	540	6.0	Frmn., Crft.	570	6.4	70.3	Boston	75.1
567	596	1163	35-39	499	502	1001	993	10.8	Laborers	957	10.7	83.6	Metro Area	87.8
432	431	863	40-44	412	462	874	66	.7	Managers	68	.8	85.9	State	89.5
363	277	640	45-49	315	342	657	1152	12.5	Operatives	1151	12.9	99.5	USA	99.3
265	217	482	50-54	299	291	590	134	1.5	Hshld Wrks	128	1.4	100.0	World	100.0
189	198	387	55-59	247	244	491	171	1.9	Prof. & Tech.	218	2.4			
166	197	363	60-64	178	199	377	84	.9	Sales Wrks	72	.8			
170	130	308	65-69	172	168	340	768	8.4	Service Wrks	842	9.4			
106	135	241	70-74	95	190	285	0	0	Unreported	0				
54	101	155	75-79	58	96	154	3784	41.1	Not in LF	3762	42.1			
27	57	84	80	51	46	97	9191	100.0	Total	8931	100.0			
		9298	18202			8984								

* Age of Cohort at end of period

Inasmuch as this age group was 15-19 five years earlier, the Boston List of Residents 20 years and over would not indicate all of the immigrants in this Cohort.

Table V

DEMOGRAPHIC CHARACTERISTICS OF MIGRANTS TO AND FROM CHARLESTOWN

Outmigrants				Immigrants			
1950-54		1955-59		1950-54		1955-59	
Male	Fem.	Tot.	Age# Group	Male	Fem.	Tot.	Age# Group
118	133	251	0-5*	171	208	379	20-24x
349	412	761	5-9*	478	505	983	25-29
261	238	499	10-14*	378	331	709	30-34
214	239	453	15-19*	255	268	523	35-39
422	194	172	20-24*	194	193	387	40-44
4634	803	1437	25-29	163	124	287	45-49
592	673	1265	30-34	119	97	216	50-54
454	446	900	35-39	85	89	174	55-59
285	316	601	40-44	75	88	163	60-64
250	248	498	45-49	76	62	138	65-69
158	141	299	50-54	48	61	109	70-74
79	116	195	55-59	25	45	70	75-59
330	176	506	60-64	12	26	38	80-
84	71	155	65-69				
			70-74				
			75-				
			70-				
	251ø	251					

* Net migrations are recorded for these age groups

The listed age is the age of the cohort at the end of the period.

x Inasmuch as this age group was 15-19 five years earlier, the Boston List of Residents over 19 years of age would not include all of the immigrants in this cohort.

ø Adjusted to eliminate calculated outmigration.

the outmigrants and Figure VII charts the immigrants exclusive of movements within Charlestown.

Of the total persons moving into or within Charlestown slightly more than forty percent were not in the labor force. One third of all such persons and fifty seven percent of those in the labor force held occupations as Operatives, Laborers and Service Workers. These occupations are classified as having a low level skill requirement. The occupations having the fewest of these persons are Managers, Sales and Professional and Technical Workers. This may be seen in Figure VIII. It should be noted in addition that migration of armed forces personnel comprises a significant portion of the total migration. Eight and one half percent of the total moves were by armed forces personnel during the first half of the 1950's. During the second half this dropped to and even five percent. Numerically, the decline was from 785 during the first half to 443 during the second half. These figures do not include the dependents and relatives of armed forces personnel.

The greater bulk of the moves into or within Charlestown occurred from places within Charlestown. Fifty seven and one half percent of the moves during the 1950's were within the district, the balance represents immigrants from outside of Charlestown. Of interest too is that during the 1950's over twelve percent of the total moves were from places outside of the state of Massachusetts. No statistics are available yet on the share of these that are connected with the armed forces.

During the first half of the 1950 decade fifty five percent

of the total moves or almost five thousand persons over 19 changed their place of residence within Charlestown. During the latter half of the decade about fifty five hundred persons changed their place of residence within the district. This accounted for almost sixty percent of the total moves. As might be expected there are a sizeable number of immigrants from the neighboring north shore cities and towns as well as from other parts of the metro where there are located naval operations, civilian and military. No specific statistics, however, have been compiled to quantify this.

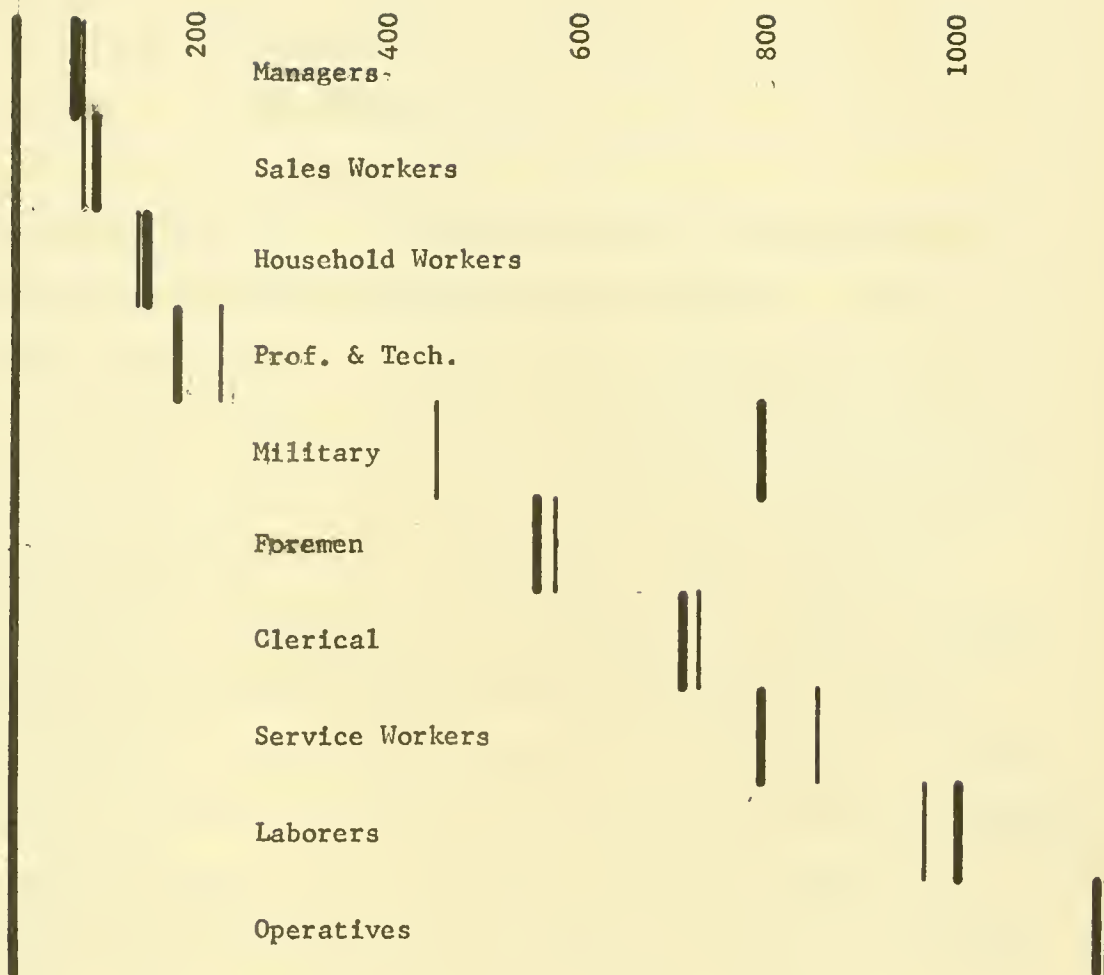


Figure VIII

DISTRIBUTION OF PERSONS IN THE LABOR FORCE
MOVING INTO AND WITHIN CHARLESTOWN BY OCCUPATION
1950-59

Section C

FORECASTS

The following material in this section is a description of the forecasts of future population by age and sex. Four forecasts were made. First, a forecast was made to determine the consequences of a continuation of the trends of change found during the 1950's. The second forecast sought to determine the consequences of no change due to migrations, that is where in-migrations is balanced exactly by outmigration. A third forecast for Charlestown was prepared based upon the predicted share of total Boston population that would reside in the district. This was based upon forecasts of total city and metropolitan population. Finally, a fourth forecast was made based upon the assumption that population in Charlestown would stabilize at the 1960 level of about 20,000. The reader will find at times that the numerical forecasts of male and female population do not add up exactly to independent forecasts of the total. These are small and are caused by rounding the rates of change. No attempt has been made to eliminate these discrepancies.

Extrapolation of Historical Trends

This forecast produced the lowest estimates of future

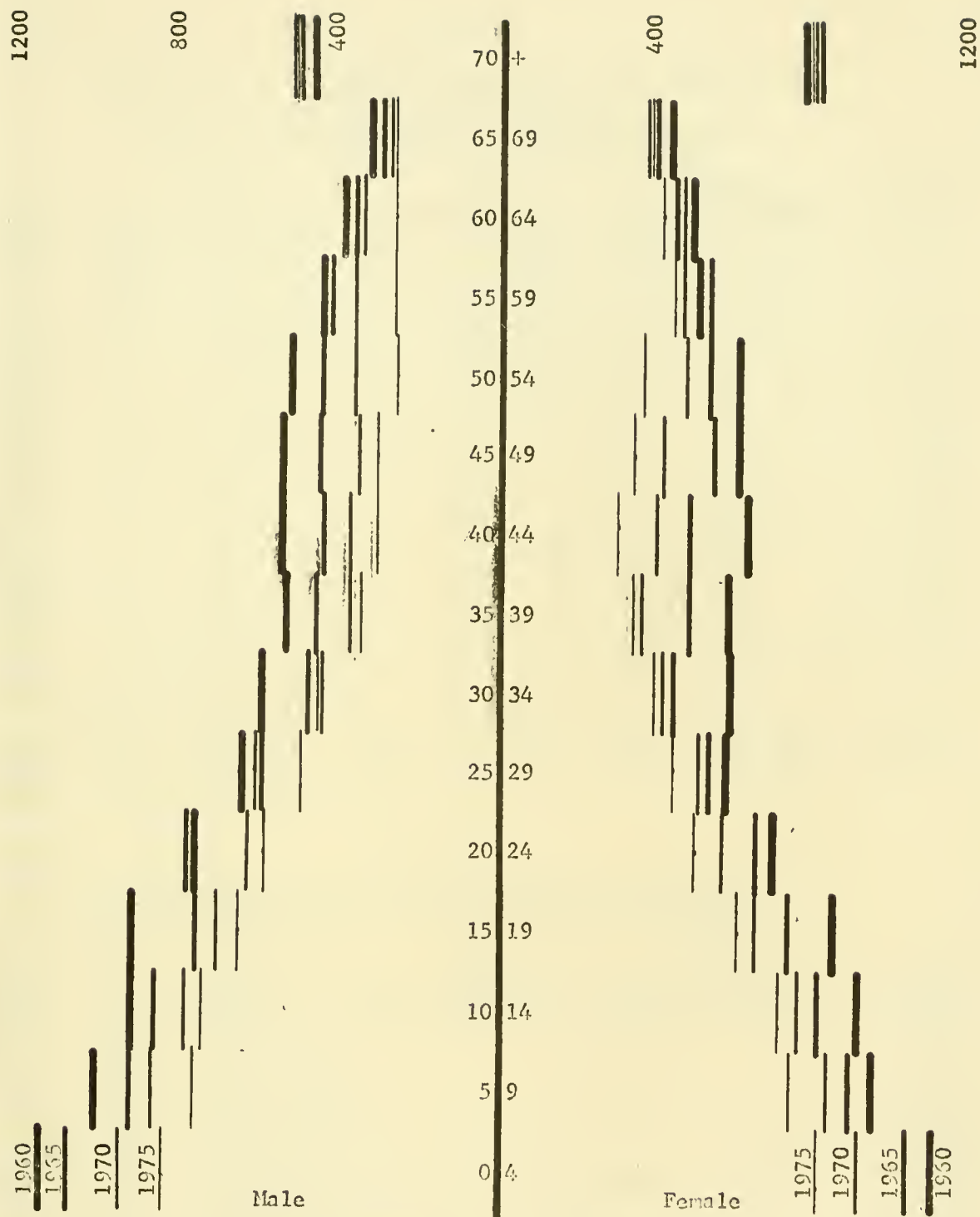


Figure IX

AGE AND SEX DISTRIBUTION FOR 1960, 1965, 1970 AND 1975
 BASED UPON EXTRAPOLATION OF HISTORICAL TRENDS

Table VI

PROJECTION OF CHARLESTOWN POPULATION BY AGE AND SEX
FOR 1965, 1970 AND 1975
BASED UPON EXTRAPOLATION OF HISTORICAL TRENDS

Age Group	1965			1970			1975			Age Group
	Male	Fem.	Tot.	Male	Fem.	Tot.	Male	Fem.	Tot.	
0-4	1089	1037	2126	961	914	1875	851	811	1662	0-4
5-9	934	891	1825	878	839	1717	775	739	1514	5-9
10-14	871	809	1681	795	759	1555	748	715	1463	10-14
15-19	767	732	1499	718	648	1366	655	608	1263	15-19
20-24	776	652	1423	637	565	1199	596	500	1093	20-24
25-29	600	532	1139	608	506	1109	499	438	935	25-29
30-34	486	442	932	448	413	863	454	387	841	30-34
35-39	467	479	946	380	361	745	350	337	690	35-39
40-44	442	481	923	383	397	780	312	299	615	40-44
45-49	454	545	998	364	415	779	316	342	658	45-49
50-54	451	531	980	373	476	845	299	362	660	50-54
55-59	441	532	972	376	468	841	311	419	725	55-59
60-64	367	443	810	357	465	820	305	409	710	60-64
65-69	307	396	703	284	374	657	276	392	666	65-69
70-	506	805	1300	512	800	1317	507	789	1288	70-
Total	8958	9314	18257	8064	8400	16468	7254	7547	14783	Total
5-19	2572	2432	5005	2391	2246	4638	2178	2062	4240	5-19
20-64	4484	4644	9123	3926	4066	7981	3442	3493	6927	20-64
65-	804	1201	2003	796	1174	1974	783	1181	1954	65-

Table VII

GROSS RATES OF NET CHANGE BY SEX AND AGE COHORTS
USED TO MAKE FORECAST IN TABLE VI (Ten thousandths)

Age Group	1960-64			1965-69			1970-74			Age Group
	Male	Fem.	Tot.	Male	Fem.	Tot.	Male	Fem.	Tot.	
0-1	8853	9018	8933							0-1
1-4	8067	8086	8076							1-4
5-9	8516	8528	8523							5-9
10-14	8238	8009	8124							10-14
15-19	8305	7722	8002							15-19
20-24	7835	7754	7794	Same as 1960-64			Same as 1960-64			20-24
25-29	7470	7656	7587							25-29
30-34	7817	8166	7993							30-34
35-39	8203	8294	8250							35-39
40-44	8241	8625	8435							40-44
45-49	8217	8728	8468							45-49
50-54	8342	8813	8581							50-54
55-59	8102	8746	8438							55-59
60-64	7726	8449	8116							60-64
65-	6375	6719	6575							65-

Charlestown population. From the 1960 level of 20,147, the population was forecasted to decline to 18,270 in 1965, to 16,465 in 1970 and to 14,800 in 1975. The greatest decline in age group population would occur among persons 35 to 54 and among those less than 20. The greatest relative stability of numbers is among persons over 65 with a very modest increase in persons over 70. The numbers of persons in each age group are shown in Table VI and the graphic portrayal of these data are shown in Figure IX.

Zero Net Migration

The assumption behind this forecast is that any change in population would occur as a result of births and deaths only. As such an increase in total population for Charlestown was forecasted such that the population would be 21,230 by 1965, 22,440 by 1970 and 24,370 by 1975. Population growth would be a result of the increase in the number of persons in the age groups below forty. The older population would remain relatively stable. In effect this forecast calls for a halt to the tendency for children and young to middle age adults to outmigrate thereby permitting these age groups to expand. The data for these forecasts are shown in Tables VIII and IX and are presented graphically in Figure X. The fertility rates shown in Table IX are used in all forecasts.

Share of City Population

This forecast was prepared in an effort to predict future



Figure X

AGE AND SEX DISTRIBUTION FOR 1960, 1965, 1970 AND 1975
BASED UPON ASSUMED ZERO NET MIGRATION

Table VIII

PROJECTIONS OF CHARLESTOWN POPULATION BY SEX AND AGE
FOR 1965, 1970 AND 1975
BASED UPON ASSUMED ZERO NET MIGRATION

Age Group	1965			1970			1975			Age Group
	Male	Fem.	Tot.	Male	Fem.	Tot.	Male	Fem.	Tot.	
0-4	1196	1125	2321	1347	1267	2615	1509	1418	2927	0-4
5-9	1153	1098	2251	1191	1121	2312	1341	1262	2605	5-9
10-14	1020	947	1967	1150	1096	2245	1187	1119	2306	10-14
15-19	928	913	1841	1017	946	1963	1147	1095	2241	15-19
20-24	930	842	1772	924	911	1835	1013	944	1957	20-24
25-29	763	693	1455	925	840	1767	919	908	1828	25-29
30-34	647	575	1221	757	690	1447	919	837	1757	30-34
35-39	591	582	1173	641	571	1210	750	685	1434	35-39
40-44	529	574	1103	580	576	1157	629	565	1193	40-44
45-49	537	621	1157	515	564	1079	565	566	1132	45-49
50-54	523	592	1114	512	604	1114	491	549	1039	50-54
55-59	489	583	1071	484	571	1053	474	583	1053	55-59
60-64	399	477	878	430	548	980	426	537	963	60-64
65-69	316	420	736	317	427	746	342	490	833	65-69
70-	431	742	1171	404	727	1120	394	719	1105	70-
Total	10452	10784	21231	11194	11459	23643	12106	12277	24373	Total
5-19	3101	2958	6059	3358	3163	6520	3675	3476	7152	
20-64	5408	5539	10944	5768	5875	11642	6186	6174	12356	
65-	747	1162	1907	721	1154	1866	736	1209	1938	

Table IX

FERTILITY AND SURVIVAL RATES BY SEX AND AGE COHORT
USED TO MAKE FORECASTS IN TABLE VIII

Age Group	Survival Rates			Fertility Rates (Total Births) By Age of Mother	Age Group
	Male	Fem.	Tot.		
0-1	9720	9780	9750		0-1
1-4	9959	9960	9960		1-4
5-9	9970	9979	9975		5-9
10-14	9972	9988	9980		10-14
15-19	9956	9978	9967	.2962	15-19
20-24	9948	9972	9960	1.2052	20-24
25-29	9935	9960	9945	1.0043	25-29
30-34	9902	9930	9912	.7211	30-34
35-39	9820	9897	9860	.4115	35-39
40-44	9740	9820	9780	.0822	40-44
45-49	9530	9730	9630		45-49
50-54	9250	9650	9450		50-54
55-59	8800	9400	9150		55-59
60-64	7950	8950	8500		60-64
65-69	7200	8500	7900		65-69
70-	4100	4900	4600		70-

total population based upon city and metropolitan forecasts. In a very crude and gross way it seeks to measure the competitive position of Boston and Charlestown for participating in metropolitan growth.

The share of the metropolitan population residing in Boston has declined consistently during the past forty years from forty one percent in 1920 to twenty eight percent in 1960. By 1975 the share is expected to decline to about 23.5 percent thereby suggesting that Boston's population will stabilize at about 700,000.

The share of Boston's population residing in Charlestown also has declined over the past three decades. About four percent of the City's population was in Charlestown in 1930 and by 1960 this has declined to less than three percent. By 1975 it is expected to decline to about 2.3 percent of the total city population. Under these projections of shares, forecasts of total population in Charlestown indicate a decline from the 1960 level to 20,147 to 18,900 by 1965, to 17,500 by 1970 and to 16,100 by 1975. As such, it suggests that the general tendency for out migration experienced during the 1950's will continue but at a lesser intensity.

Table X records the thinking on the projection of shares and the graphic display of the calculated shares shown in Figure XII. Table XI lists the forecasted age and sex populations which are graphically shown in Figure XI. The rates employed for making this forecast are shown in Table XII.

Table X
POPULATION DISTRIBUTION

<u>Year</u>	<u>Shares (percent)</u>		<u>Population (in thousands)</u>		
	<u>Boston/SMA</u>	<u>Chas./Bost.</u>	<u>Metro.</u>	<u>Boston</u>	<u>Charlestown</u>
1920	41				
1925	39				
1930	36	4.1		779.9	31.6
1935	37			774.0	
1940	35	3.3		770.8	25.6
1945	34			767.1	
1950	34	3.2		801.4	26.0
1955	30	3.2		724.7	
1960	28	2.9		697.2	20.1
1965	26.5	2.7	2650	700	18.9
1970	25	2.5	2810	700	17.5
1975	23.5	2.3	2980	700	16.1

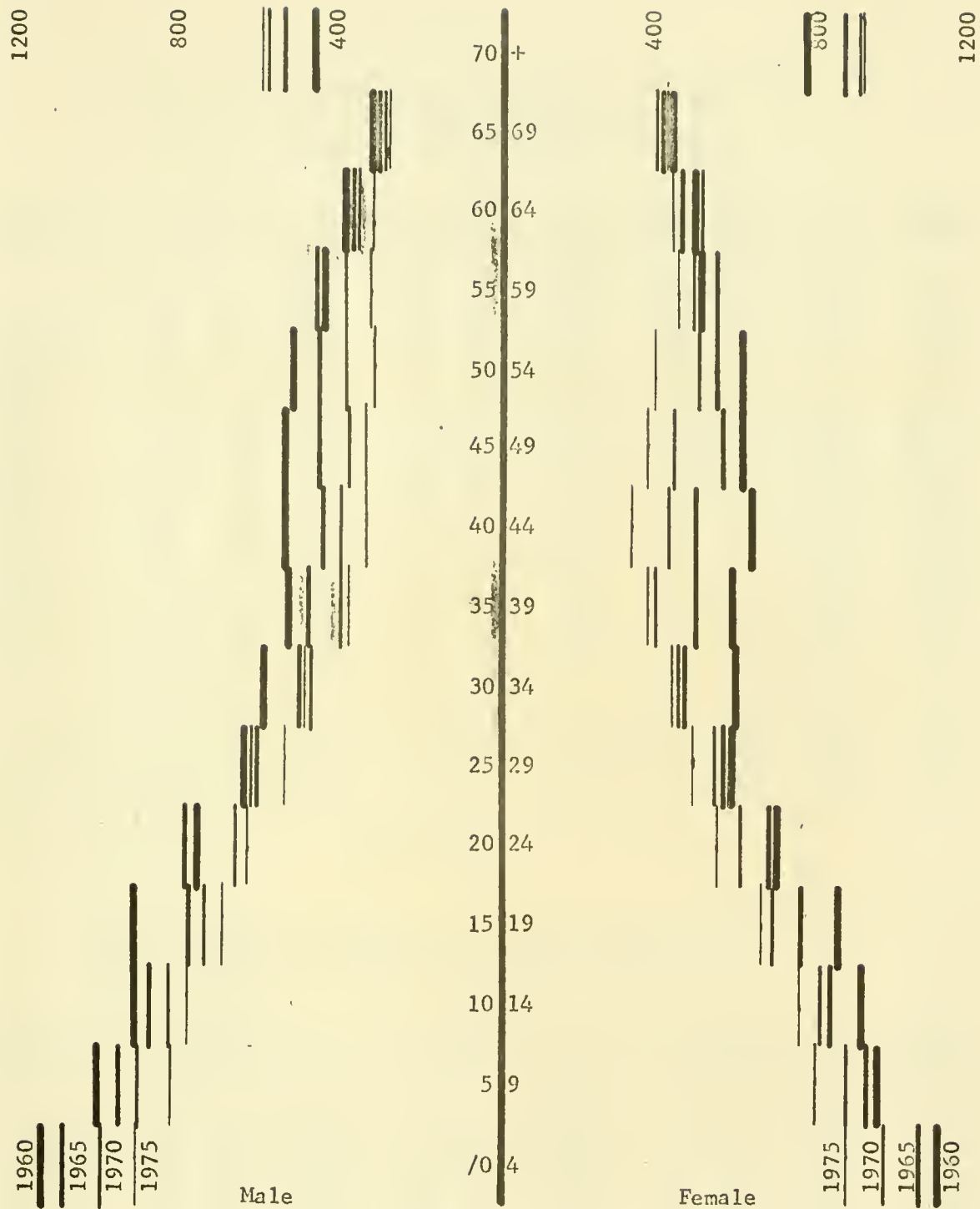


Figure XI

AGE AND SEX DISTRIBUTION FOR 1960, 1965, 1970 AND 1975
 BASED UPON PROJECTED SHARES OF CITY POPULATION

Table XI

PROJECTIONS OF CHARLESTOWN POPULATION BY AGE AND SEX
FOR 1965, 1970 AND 1975
BASED UPON PROJECTED SHARES OF CITY POPULATION

Age Group	1965			1970			1975			Age Group
	Male	Fem.	Tot.	Male	Fem.	Tot.	Male	Fem.	Tot.	
0-4	1110	1054	2164	1015	965	1988	923	878	1809	0-4
5-9	968	923	1891	919	874	1793	838	798	1643	5-9
10-14	894	830	1725	840	802	1642	796	758	1554	10-14
15-19	792	759	1551	754	683	1436	706	658	1364	15-19
20-24	800	681	1476	672	605	1275	639	543	1177	20-24
25-29	625	562	1187	646	545	1186	541	482	1021	25-29
30-34	511	462	976	484	445	932	499	430	928	30-34
35-39	486	495	981	412	386	801	389	371	763	35-39
40-44	457	496	953	408	420	828	345	327	675	40-44
45-49	469	558	1026	385	435	820	343	368	711	45-49
50-54	466	542	1006	394	495	886	323	385	707	50-54
55-59	455	543	996	397	485	879	335	442	773	55-59
60-64	380	453	833	378	482	857	329	430	755	60-64
65-69	320	407	727	303	390	693	300	415	711	65-69
70-	556	864	1420	593	899	1492	603	907	1510	70-
Total	9289	9629	18962	8600	8911	17508	7909	8192	16101	Total
5-19	2654	2512	5167	2513	2359	4871	2340	2214	4561	5-19
20-64	4649	4792	9484	4176	4298	8464	3743	3778	7510	20-64
65-	876	1271	2147	896	1289	2185	903	1322	2221	65-

Table XII

GROSS RATES OF NET CHANGE BY SEX AND AGE COHORTS
USED TO MAKE THE FORECASTS IN TABLE XI

Age Group	1960-64			1965-69			1970-74			Age Group
	Male	Fem.	Tot.	Male	Fem.	Tot.	Male	Fem.	Tot.	
0-1	9026	9166	9094	8978	9125	9087	8965	9114	9076	0-1
1-4	8357	8374	8366	8276	8294	8286	8254	8273	8265	1-4
5-9	8739	8750	8745	8677	8688	8683	8660	8672	8667	5-9
10-14	8503	8309	8406	8429	8226	8327	8409	8204	8306	10-14
15-19	8560	8065	8303	8489	9970	8219	8470	7945	8197	15-19
20-24	8161	8092	8126	8070	7998	8034	8046	7973	8007	20-24
25-29	7851	8009	7950	7745	7911	7849	7717	7885	7822	25-29
30-34	8146	8442	8295	8055	8365	8211	8031	8345	8189	30-34
35-39	8474	8551	8514	8399	8480	8441	8379	8461	8422	35-39
40-44	8506	8832	8671	8432	8774	8606	8412	8759	8589	40-44
45-49	8485	8920	8699	8410	8867	8635	8390	8863	8618	45-49
50-54	8592	8992	8795	8523	8942	8736	8505	8929	8720	50-54
55-59	8388	8935	8673	8309	8883	8608	8288	8869	8591	55-59
60-64	8068	8683	8400	7973	8618	8321	7948	8601	8300	60-64
65-	6921	7213	7091	6769	7076	6948	6729	7039	6910	65-



Figure XII

BOSTON POPULATION AS A SHARE OF METROPOLITAN POPULATION
AND CHARLESTOWN POPULATION AS A SHARE OF BOSTON POPULATION

Stable Total Population

This forecast is intended to describe the change in age group population if the population of Charlestown stabilized at its 1960 level of about 20,000. The consequences of this assumption produce minor variations in most age group populations. However, a spectacular doubling of the population over seventy is projected. Relative declines in numbers also may be expected in the 35 to 54 age groups owing essentially to relatively small populations currently in the age groups 10 to 15 years younger. The data for the projections are presented in Table XIII and XVI and the graphic presentation of the age sex distribution is shown in Figure XIII.



Figure XIII

AGE AND SEX DISTRIBUTION FOR 1960, 1965, 1970 AND 1975
 BASED UPON ASSUMED STABLE TOTAL POPULATION

Table XIII

PROJECTIONS OF CHARLESTOWN POPULATION BY AGE AND SEX
FOR 1965, 1970 AND 1975
BASED UPON ASSUMED STABLE TOTAL POPULATION

Age Group	1965			1970			1975			Age Group
	Male	Fem.	Tot.	Male	Rem.	Tot.	Male	Fem.	Tot.	
0-4	1146	1083	2230	1134	1069	2204	1128	1064	2192	0-4
5-9	1025	977	2003	1025	970	1995	1017	960	1978	5-9
10-14	933	866	1800	942	898	1841	944	894	1838	10-14
15-19	834	806	1640	843	772	1615	854	803	1657	15-19
20-24	840	730	1568	757	706	1461	767	678	1443	20-24
25-29	668	603	1270	741	640	1379	670	621	1289	25-29
30-34	554	497	1053	576	526	1102	641	560	1202	30-34
35-39	520	522	1042	488	447	937	509	475	984	35-39
40-44	482	521	1003	469	473	942	441	406	850	40-44
45-49	494	581	1073	436	482	917	425	438	863	45-49
50-54	491	562	1052	446	541	983	395	449	842	50-54
55-59	477	562	1038	447	526	970	407	507	909	55-59
60-64	402	469	871	427	523	949	402	491	889	60-64
65-69	343	426	769	352	429	781	375	480	854	65-69
70-	632	965	1596	782	1141	1922	915	1295	2210	70-
Total	9841	10170	20008	9865	10143	19998	9890	10121	20000	Total
5-19	2792	2649	5443	2810	2640	5451	2815	2657	5473	5-19
20-64	4928	5047	9970	4787	4864	9640	4657	4625	9271	20-64
65-	975	1391	2365	1134	1570	2703	1290	1775	3064	65-

Table XIV

GROSS RATES OF NET CHANGE BY SEX AND AGE COHORTS
USED TO MAKE THE FORECASTS SHOWN IN TABLE XIII

Age Group	1960-64			1965-69			1970-74			Age Group
	Male	Fem.	Tot.	Male	Fem.	Tot.	Male	Fem.	Tot.	
0-1	9321	9419	9369	9373	9464	9417	9389	4478	9432	0-1
1-4	8855	8867	8861	8942	8953	8948	8969	8980	8975	1-4
5-9	9122	9129	9126	9189	9195	9192	9210	9216	9213	5-9
10-14	8957	8822	8890	9036	8911	8974	9061	8939	9000	10-14
15-19	8997	8652	8818	9013	8754	8909	9097	8786	8936	15-19
20-24	8719	8671	8694	8816	8772	8793	8846	8803	8824	20-24
25-29	8503	8613	8572	8617	8718	8680	8652	8751	8714	25-29
30-34	8708	8915	8812	8806	8997	8902	8837	9023	8930	30-34
35-39	8937	8990	8964	9018	9067	9043	9043	9091	9067	35-39
40-44	8959	9186	9074	9058	9248	9144	9063	9267	9166	40-44
45-49	8945	9247	9093	9025	9304	9162	9050	9322	9183	45-49
50-54	4019	9298	9160	9094	9351	9224	9117	9368	9244	50-54
55-59	8877	9258	9076	8962	9314	9146	8989	9332	9168	55-59
60-64	8654	9082	8885	8756	9152	8970	8788	9174	8996	60-64
65-	7855	8058	7973	8018	8205	8127	8069	8251	8175	65-

Section D

TECHNICAL CONSIDERATIONS

The following is a description of the technical factors and methods employed in making the four forecasts presented above.

Preparation of the forecast based upon that assumption that immigration would balance exactly with outmigration involved the development of age specific birth and death rates for Charlestown. This was accomplished by using the city wide fertility and death rates as a model and the actual recorded resident births and deaths as a control. In effect the city wide rates were adjusted so that the adjusted rates would produce the recorded births and deaths. Age specific death and fertility rates derived in this manner were employed to develop forecasts over the three five year periods.

The preparation of the three other forecasts are based upon a historical analysis of the total net change in each age cohort. The product of this analysis was a series of age specific gross rates of net change. They are termed gross because they describe total change, i.e., the combined change of deaths and migrations. These rates together are assumed to represent a model of the relative propensity of the age cohort populations in the district to change over a five year period. The model developed for the total Charlestown population is shown in Figure XIV. A comparison

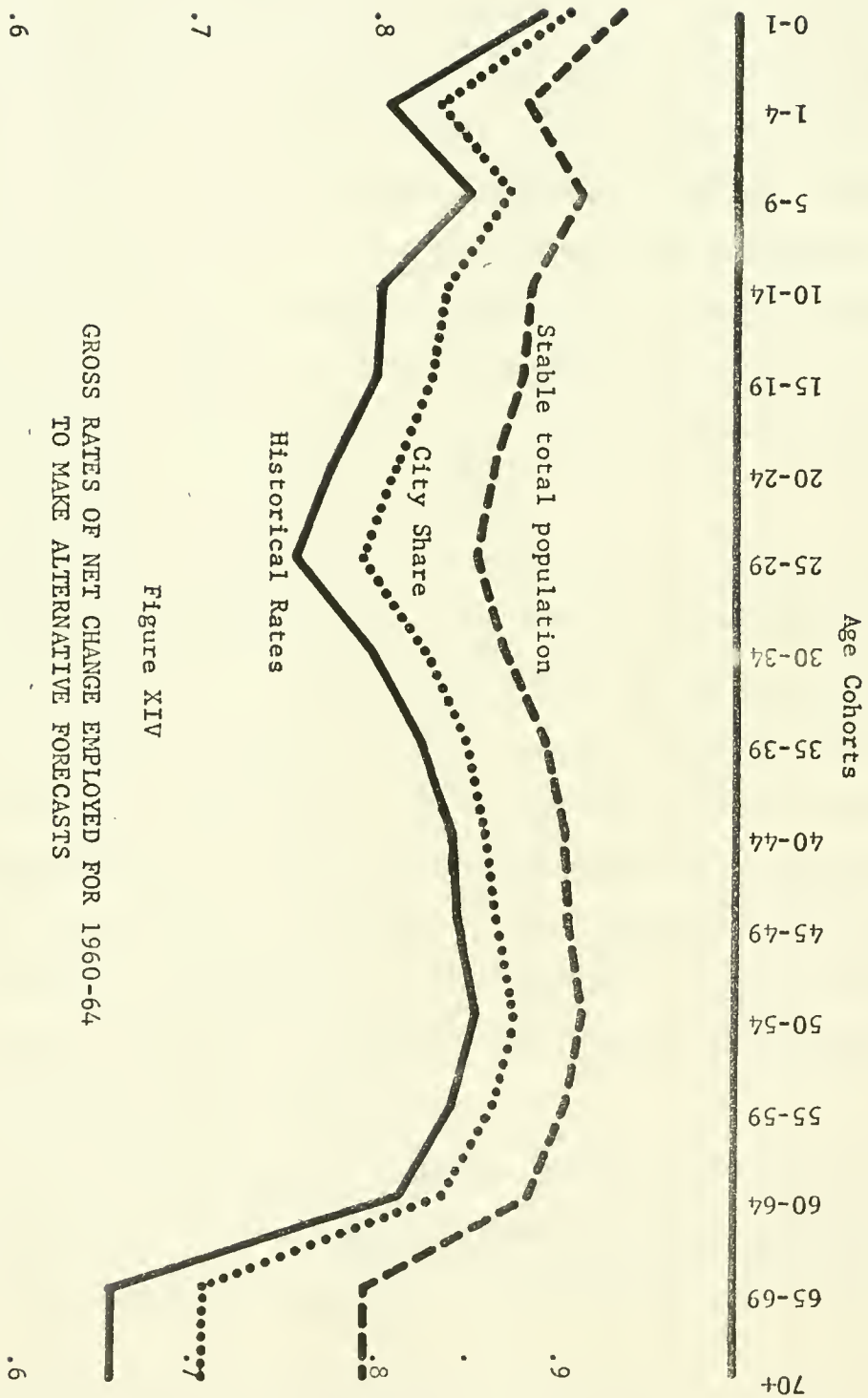


Figure XIV
GROSS RATES OF NET CHANGE EMPLOYED FOR 1960-64
TO MAKE ALTERNATIVE FORECASTS

with Figure II will show how the general characteristics of historical age specific change have been generalized into a smoother curve.

The activity and change that the curve in Figure XII represents may be described as follows. Among the births there is a low rate of decline owing probably to a delay on the part of the parents to outmigrate until the child has grown somewhat older and/or until the second child is born. This delay also gives the parents time enough to better their economic position. Thus the rate of decline among children 1-4 (becoming 5-9) is somewhat higher. The lower rate of decline among children 5-9 (becoming 10-14) indicates possibly that many of those that plan to outmigrate already have and/or that it has taken longer to reach the economic level where a move is possible.

Among the adolescents age 10-14 (becoming 15-19) the rate of decline increases again possibly reflecting the early marriages, going away to school, etc. The same reasons may be offered for the steadily increasing rate of decline among the population in the next three age cohorts, i.e., up to age 25 to 29 (becoming 30-34). Subsequently, the rate of decline lessens possibly due to the inertia and positive desire of the remainder of the population to remain in Charlestown. The increase in the decline among the older population represents the rapidly rising death rate among persons of these ages.

This model is used as is to prepare the forecast based upon historical trends. The model in an adjusted form is used to prepare the other two forecasts. The adjusted models used

are both shown in Figure XII. The adjustment to the model of change is made in a manner similar to the technique used to develop age specific death and fertility rates for the district. The same approach as used for making forecasts of total population is employed for making projections of male and female population.

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